

WE CLAIM:

1. In a RAID data storage system comprising a RAID stripe, wherein the stripe comprises a plurality of stripe units including a first stripe unit, a method comprising:
receiving a request to read data, wherein the request is received from a computer system in data communication with the RAID data storage system;
reading first parity data corresponding to the first stripe unit data in response to receiving the request;
generating new first parity data corresponding to the first stripe unit data, wherein the new first parity data is generated as a function of the first stripe unit data;
comparing the first parity data with the new first parity data;
returning data of the first stripe unit to the computer system if the first parity data compares equally to the new first parity data.
2. The method of claim 1 wherein the RAID data storage system comprises a parity RAID data storage system.
3. The method of claim 2 wherein the parity RAID data storage system comprises a RAID-5 data storage system.
4. The method of claim 1 wherein the new first parity data is generated only as a function of first stripe unit data.
5. The method of claim 1 further comprising:
if the first parity data does not compare equally to the new first parity data:
reading stripe parity P, wherein stripe parity P corresponds to the plurality of stripe units;
reading data of the plurality of stripe units other than the first stripe unit;
generating new first stripe unit data as a function of stripe parity P and data of the plurality of stripe units other than the first stripe unit;
generating another new first parity data corresponding to the first stripe unit data, wherein the another new first parity data is generated as a function of the new first stripe unit data;
comparing the new first parity data with the another new first parity data.

6. The method of claim 5 further comprising overwriting data of the first stripe unit with the new first stripe unit data if the new first parity data compares equally with the another new first parity data.

7. The method of claim 6 further comprising returning the new first stripe unit data to the computer system if the new first parity data compares equally with the another new first parity data.

8. The method of claim 5 further comprising comparing the first stripe unit data to the new first stripe unit data if the new first parity data does not compare equally with the another new first parity data.

9. The method of claim 8 further comprising returning an error message to the computer system if the first stripe unit data does not compare equally to the new first stripe unit data.

10. The method of claim 8 further comprising overwriting the first parity data with the new first parity data if the new first stripe unit data compares equally to the first stripe unit data.

11. A computer readable medium storing instructions executable by a first computer system in a RAID data storage system, wherein the RAID data storage system comprises a stripe, wherein the stripe comprises a plurality of stripe units including a first stripe unit, wherein the first computer system performs a method in response to executing instructions stored on the computer readable medium, the method comprising:

- reading first parity data corresponding to the first stripe unit data in response to receiving a request to read data, wherein the request is received from a second computer system in data communication with the first computer system;
- generating new first parity data corresponding to the first stripe unit data, wherein the new first parity data is generated as a function of the first stripe unit data;
- comparing the first parity data with the new first parity data;
- returning data of the first stripe unit to the second computer system if the first parity data compares equally to the new first parity data.

12. The computer readable medium of claim 11 wherein the RAID data storage system comprises a parity RAID data storage system.

13. The computer readable medium of claim 12 wherein the parity RAID data storage system comprises a RAID-5 data storage system.

14. The computer readable medium of claim 11 wherein the new first parity data is generated only as a function of first stripe unit data.

15. The computer readable medium of claim 11 wherein the method further comprises:

if the first parity data does not compare equally to the new first parity data:

reading stripe parity P, wherein stripe parity P corresponds to the plurality of stripe units;

reading data of the plurality of stripe units other than the first stripe unit;

generating new first stripe unit data as a function of stripe parity P and data of the plurality of stripe units other than the first stripe unit;

generating another new first parity data corresponding to the first stripe unit data, wherein the another new first parity data is generated as a function of the new first stripe unit data;

comparing the new first parity data with the another new first parity data.

16. The computer readable medium of claim 15 wherein the method further comprises overwriting data of the first stripe unit with the new first stripe unit data if the new first parity data compares equally with the another new first parity data.

17. The computer readable medium of claim 16 wherein the method further comprises returning the new first stripe unit data to the computer system if the new first parity data compares equally with the another new first parity data.

18. The computer readable medium of claim 15 wherein the method further comprises comparing the first stripe unit data to the new first stripe unit data if the new first parity data does not compare equally with the another new first parity data.

19. The computer readable medium of claim 18 wherein the method further comprises returning an error message to the computer system if the first stripe unit data does not compare equally to the new first stripe unit data.

20. The computer readable medium of claim 18 wherein the method further comprises overwriting the first parity data with the new first parity data if the new first stripe unit data compares equally to the first stripe unit data.

21. A data processing system comprising;
a RAID data storage system comprising a RAID stripe, wherein the stripe comprises a plurality of stripe units including a first stripe unit;
a first computer system for receiving a request to read data, wherein the request is received from a second computer system in data communication with the first computer system, wherein the first computer system comprises a computer readable medium that stores instructions executable by the first computer system, wherein the first computer system performs a method in response to executing the stored instructions, the method comprising;
reading first parity data corresponding to the first stripe unit data in response to the first computer receiving the request;
generating new first parity data corresponding to the first stripe unit data, wherein the new first parity data is generated as a function of the first stripe unit data;
comparing the first parity data with the new first parity data;
returning data of the first stripe unit to the second computer system if the first parity data compares equally to the new first parity data.

22. A data processing system comprising:
a RAID data storage system comprising a RAID stripe, wherein the stripe comprises a plurality of stripe units including a first stripe unit, a method comprising:
means for receiving a request to read data, wherein the request is received from a computer system in data communication with the RAID data storage system;
means for reading first parity data corresponding to the first stripe unit data in response to receiving the request;
means for generating new first parity data corresponding to the first stripe unit data, wherein the new first parity data is generated as a function of the first stripe unit data;
means for comparing the first parity data with the new first parity data;
means for returning data of the first stripe unit to the computer system if the first parity data compares equally to the new first parity data.